



PTO/SB/032 (03-03)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1

of 12

Application Number	10/773,777
Filing Date	Feb. 6, 2004
First Named Inventor	Anand P. Narayan
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0006

U. S. PATENT DOCUMENTS				
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
/EB/		Number-Kind Code ² (if any)		
		US- 4088955	05-09-1978	Baghdady
		US- 4309769	01-05-1982	Taylor, Jr.
		US- 4359738	11-16-1982	Lewis
		US- 4665401	05-12-1987	Garrard et al.
		US- 4670885	06-02-1987	Parl et al.
		US- 4780885	10-25-1988	Paul et al.
		US- 4856025	10-08-1989	Takai
		US- 4893316	01-09-1990	Janc et al.
		US- 4922506	05-01-1990	McCallister et al.
		US- 4933639	06-12-1990	Barker
		US- 4965732	10-23-1990	Roy III et al.
		US- 5017929	05-21-1991	Tsuda
		US- 5099493	05-24-1992	Zeger et al.
		US- 5105435	04-14-1992	Stilwell
		US- 5109390	04-28-1992	Gilhousen et al.
		US- 5119401	06-02-1992	Tsujimoto
		US- 5136296	04-04-1992	Roettger et al.
		US- 5151919	09-29-1992	Dent

FOREIGN PATENT DOCUMENTS				
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
/EB/		Country, Serial Number, and Date		
/EB/		EP 0556910 A1	01-25-1993	Blaupunkt-Werke GmbH
/EB/		EP 0610989 A2	01-31-1994	Phillips Patentverwaltung GmbH
/EB/		JP2000-13360A	01-14-2000	NEC Corp.
/EB/		DE 4201439 A1	07-22-1993	Daimler-Benz
/EB/		DE 4326843 A1	02-16-1995	Richard Hirschmann GmbH & Co

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		Number-Kind Code ²			
/EB/	US-5218359		06-08-1993	Minamisono	
	US-5218619		06-08-1993	Dent	
	US-5220687		06-05-1993	Ichikawa et al.	
	US-5224122		06-29-1993	Bruckert	
	US-5237586		08-17-1993	Bottomley	
	US-5263191		11-16-1993	Dickerson	
	US-5280472		01-18-1994	Gilhousen et al.	
	US-5305349		04-19-1994	Dent	
	US-5325394		06-28-1994	Bruckert	
	US-5343493		08-30-1994	Karimullah	
	US-5343496		08-30-1994	Honig et al.	
	US-5347535		09-13-1994	Karasawa et al.	
	US-5353302		10-04-1994	Bi	
	US-5386202		01-31-1995	Cochran et al.	
	US-5390207		02-14-1995	Fenton et al.	
	US-5394110		02-28-1995	Mizoguchi	
	US-5396256		03-07-1995	Chiba et al.	
	US-5437055		07-25-1995	Wheatley III	

FOREIGN PATENT DOCUMENTS

Examiner	Cite No.	Foreign Patent Document	Publication Date	Name of Patentee or Assignee of Cited Document	Pages, Columns, Lines, Volume, Relevant Paragraphs in Right Hand Column
/EB/		Germany, Federal Republic of (and others of inventors)	07-03-1994		7-8
/EB/		DE 4343959 A1	06-29-1995	Rueter Hirschmann GmbH & Co	8270
/EB/		WO 93/12590	06-24-1995	Array-Comm, Inc.	8270
/EB/		GB 2280575 A	02-01-1995	Roke Manor Research Limited	8270
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/EB/		US- 5440265	08-08-1995	Cochran et al.	
		US- 5448600	09-05-1995	Lucas	
		US- 5481570	01-02-1996	Winters	
		US- 5506865	04-09-1996	Weaver Jr.	
		US- 5513176	04-30-1996	Dean et al.	
		US- 5533011	04-02-1996	Dean et al.	
		US- 5553098	09-03-1996	Cochran et al.	
		US- 5602833	02-11-1997	Zehavi	
		US- 5644592	07-01-1997	Divsalar	
		US- 5736964	04-07-1998	Ghosh et al.	
		US- 5787130	07-28-1998	Kotzin et al.	
		US- 5844521	12-01-1998	Stephens et al.	
		US- 5859613	01-12-1999	Otto	
		US- 5872540	02-16-1999	Casabona	
		US- 5872776	02-16-1999	Yang	
		US- 5926761	07-20-1999	Reed et al.	
		US- 5930229	07-27-1999	Yoshida et al.	
		US- 5953369	09-14-1999	Suzuki	
/EB/					

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/EB/		US- 5995499	11-30-1999	Hottinen et al.	
		US- 6002727	12-14-1999	Uesugi	
		US- 6014373	01-11-2000	Schilling et al.	
		US- 6018317	01-25-2000	Dogan et al.	
		US- 6088383	07-11-2000	Suzuki et al.	
		US- 6101385	08-08-2000	Monte et al.	
		US- 6104712	08-15-2000	Robert et al.	
		US- 6115409	09-05-2000	Upadhyay et al.	
		US- 6127973	10-03-2000	Choi et al.	
		US- 6131013	10-10-2000	Bergstrom et al.	
		US- 6137788	10-24-2000	Sawahashi et al.	
		US- 6141332	10-31-2000	Lavaen	
		US- 6154443	11-28-2000	Huang et al.	
		US- 6157685	12-05-2000	Tanaka et al.	
		US- 6157842	12-05-2000	Kaisson et al.	
		US- 6157847	12-05-2000	Buehrer et al.	
		US- 6163696	12-19-2000	Bi et al.	
		US- 6166690	12-26-2000	Lin et al.	

FOREIGN PATENT DOCUMENTS

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					1-14-0
					1-14-0
					1-14-0
					1-14-0

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/EB/		US-6172969	01-09-2001	Kawakami et al.	
		US-6175587	01-15-2001	Madhow et al.	
		US-6192067	02-20-2001	Toda et al.	
		US-6201799	03-13-2001	Huang et al.	
		US-6215812	04-10-2001	Young et al.	
		US-6219376	04-17-2001	Zhodzishsky et al.	
		US-6222828	04-24-2001	Ohlson et al.	
		US-6230180	05-08-2001	Mohamed	
		US-6233229	05-15-2001	Ranta et al.	
		US-6233459	05-15-2001	Sullivan et al.	
		US-6240124	05-29-2001	Wiedeman et al.	
		US-6252535	06-26-2001	Kober et al.	
		US-6256336	07-03-2001	Rademacher et al.	
		US-6259688	07-10-2001	Schilling et al.	
		US-6263208	07-17-2001	Chang et al.	
		US-6275186	08-14-2001	Kong	
		US-6278726	08-21-2001	Mesecher et al.	
		US-6282231	08-21-2001	Norman et al.	

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/EB/		US- 6282233	08-28-2001	Yoshida	
		US- 6285316	09-04-2001	Nir et al.	
		US- 6285319	09-04-2001	Rose	
		US- 6301289	10-09-2001	Bejjani et al.	
		US- 6304618	10-16-2001	Hafeez et al.	
		US- 6308072	10-23-2001	Labedz et al.	
		US- 6310704	10-30-2001	Dogan et al.	
		US- 6317453	11-13-2001	Chang	
		US- 6321090	11-20-2001	Soliman	
		US- 6324159	11-27-2001	Mennekens et al.	
		US- 6327471	12-04-2001	Song	
		US- 6330460	12-11-2001	Wong et al.	
		US- 6333947	12-25-2005	van Heeswyk et al.	
		US- 6351235	02-26-2002	Stilp	
		US- 6351642	02-26-2002	Corbett et al.	
		US- 6359874	03-19-2002	Dent	
		US- 6362760	03-26-2002	Kober et al.	
		US- 6377636	04-23-2002	Paulraj et al.	

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		US-6396804	05-28-2002	Odenwalder	
		US-6430216	08-06-2002	Kober et al.	
		US-6459693	10-01-2002	Park et al.	
		US-20010003443	06-14-2001	Velazquez et al.	
		US-20010020912	09-13-2001	Naruse et al.	
		US-20010021646	09-13-2001	Antonucci et al.	
		US-20010046266	11-29-2001	Rakib et al.	
		US-20020001299	01-23-2002	Petch et al.	
		US-20020172173	11-21-2002	Schilling et al.	
		US-20030053526	03-20-2003	Reznik	
		US-6285861	09-04-2001	Bonaccorso et al.	
		US-3742201	06-26-1973	Groginsky	
		US-4713794	12-15-1987	Byington et al.	
		US-5377183	12-27-1994	Dent	
		US-20020051433	05-02-2002	Affes et al.	
		US-5894500	04-13-1999	Bruckert et al.	
		US-6404760	06-11-2002	Holtzman et al.	
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of 12

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Application Number	10/773,777
Filing Date	Feb. 6, 2004
First Named Inventor	Anand P. Narayan
Art Unit	
Examiner Name	
Attorney Docket Number	TCOM-0006

U. S. PATENT DOCUMENTS				
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ^{2/14-16}	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
/EB/		US- 6584115	06-24-2003	Suzuki
		US- 6266529	07-24-2001	Chheda
		US- 5978413	11-02-1999	Bender
		US- 6590888	07-08-2003	Ohshima
		US- 20020176488	11-28-2002	Kober et al.
		US- 6032056	02-29-2000	Reudink
		US- 4601046	07-15-1986	Halpern
		US- 6515980	02-04-2003	Bottomley
		US- 6574,270	06-03-2003	Madkour
		US- 6798737	09-28-2004	Dabak
		US- 6501788	12-31-2002	Wang
		US- 6801565	10-05-2004	Bottomley
		US- 6404760	06-11-2002	Holtzman
		US- 6385264	05-07-2002	Terasawa
		US- 6680727	01-20-2004	Butler
		US- 6570909	05-27-2003	Kansakoski
		US- 6580771	06-17-2003	Kenney
		US- 6363104	03-26-2002	Bottomley

FOREIGN PATENT DOCUMENTS				
Examiner Initials*	Cite No.	Foreign Patent Document Country and Number-Kind Code (if known)	Publication Date	Name of Patentee or Applicant of Cited Document

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Sheet

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		Complete if Known	
		Application Number	10/773,777
		Filing Date	Feb. 6, 2004
		First Named Inventor	Anand P. Narayan
		Art Unit	
		Examiner Name	
		Attorney Docket Number	TCOM-0006

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
/EB/		MITRA, ET AL., Adaptive Decorrelating Detectors for CDMA Systems, Accepted for Wireless Communications Journal, Accepted May 1995	
		SCHNEIDER, Optimum Detection of Code Division Multiplexed Signals, IEEE Transactions on Aerospace and Electronic Systems, Jan. 1979, Vol. AES-15 No. 1	12
		MITRA, ET AL., Adaptive Receiver Algorithms for Near-Far Resistant CDMA, IEEE Transactions of Communications, Apr. 1995	
		LUPAS, ET AL. Near-Far Resistance of Multiuser Detectors in Asynchronous Channels, IEEE Transactions on Communications, April 1990, Vol. 38, No. 4	
		LUPAS, ET AL., Linear Multiuser Detectors for Synchronous Code-Division Multiple-Access Channels, IEEE Transactions on Information Theory, Jan. 1989, Vol. 35, No. 1	
		KOHNO, ET AL., Cancellation Techniques of Co-Channel Interference in Asynchronous Spread Spectrum Multiple Access Systems, May 1983, Vol. J 56-A. No. 5	
		GARG, ET AL., Wireless and Personal Communications Systems, 1996, pgs. 79-151, Prentice Hall, Upper Saddle River, NJ, US	
		CHENG, ET AL., Spread-Spectrum Code Acquisition in the Presence of Doppler Shift and User Interference, IEEE Transactions on Communications, Feb. 1990, Vol. 38 No. 2	
		BEHRENS ET AL., Parameter Estimation in the Presence of Low Rank Noise, pgs. 341-344, Maple Press, 1988	
/EB/		BEST, Phase-Locked Loops - Design, Simulation, and Applications, pgs. 251-287, McGraw-Hill, 1999	

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12

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Application Number	10/773,777
Filing Date	Feb. 6, 2004
First Named Inventor	Anand P. Narayan
Art Unit	
Examiner Name	

Attorney Docket Number TCOM-0006

NON PATENT LITERATURE DOCUMENTS

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/EB/		ILTIS, Multiuser Detection of Quasynchronous CDMA Signals Using Linear Decorrelators, IEEE Transactions on Communications, Nov. 1996, Vol. 44, No. 11	
		RAPPAPORT, Wireless Communications - Principles & Practice, 1996, pgs. 518-533, Prentice Hall, Upper Saddle River, NJ, US	12
		SCHARF, ET AL., Matched Subspace Detectors, IEEE Transactions on Signal Processing, Aug. 1994, Vol. 42, No. 8.	
		PRICE ET AL., A Communication Technique for Multipath Channels, Proceedings to the IRE, 1958, Vol. 46, The Institute of Radio Engineers, New York, NY, US	
		AFFES ET AL., Interference Subspace Rejection: A Framework for Multiuser Detection in Wideband CDMA, IEEE Journal on Selected Areas in Communications, Feb. 2002, Vol. 20, No. 2	
		SCHLEGEL ET AL., Coded Asynchronous CDMA and Its Efficient Detection, IEEE Transactions on Information Theory, Nov. 1998, Vol. 44, No. 7	
		XIE ET AL., A family of Suboptimum Detectors for Coherent Multiuser Communications, IEEE Journal on Selected Areas in Communications, May 1990, Vol. 8, No. 4	
		VITERBI, Very Low Rate Convolutional Codes for Maximum Theoretical Performance of Spread Spectrum Communications, IEEE Journal on Selected Areas in Communications, May 1982, Vol. 2, No. 4	
↓		VITERBI, CDMA - Principles of Spread Spectrum Communication, 1995, pgs. 11-75 and 179-233, Addison-Wesley, Reading, MA, US	
/EB/		VERDU, Minimum Probability of Error for Asynchronous Gaussian Multiple-Access Channels, IEEE Transactions on Information Theory, Jan. 1986, Vol. IT-32, No. 1	

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Filing Date	Feb. 6, 2004
First Named Inventor	Anand P. Narayan
Art Unit	
Examiner Name	
Attorney Docket Number TCOM-0006	

NON PATENT LITERATURE DOCUMENTS

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/EB/		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		KAPLAN, Understanding GPS - Principles and Applications, 1996, pgs. 83-236, Artech House, Norwood, MA, US	
		SCHARF, Statistical Signal Processing - Detection, Estimation, and Time Series Analysis, 1990, pgs. 23-75 and 103-178, Addison-Wesley, Reading, MA, US	12
		STIMSON, Introduction to Airborne Radar 2nd edition, 1998, pgs. 163-176 and 473-491, SciTech Publishing, Mendham, NJ, US	
		BEHRENS ET AL., Signal Processing Applications of Oblique Projection Operators, IEEE Transactions on Signal Processing, Jun. 1994, Vol. 42, No. 6	
		ALEXANDER ET AL., A Linear Receiver for Coded Multiuser CDMA, IEEE Transactions on Communications, May 1997, Vol. 45, No. 5	
		SCHLEGEL ET AL., Multiuser Projection Receivers, IEEE Journal on Selected Areas in Communications, Oct. 1996, Vol. 14, No. 8	
		HALPER ET AL., Digital-to-Analog Conversion by Pulse-Count Modulation Methods, IEEE Transactions on Instrumentation and Measurement, Aug. 1996, Vol. 45, No. 4	
		ORTEGA ET AL., Analog to Digital and Digital to Analog Conversion Based on Stochastic Logic, IEEE 0-7803-3320-3/93, 1993	
		FRANKEL ET AL., High performance photonic analogue digital converter, Electronic Letters, Dec. 4, 1997, Vol. 33, No. 25	
↓		LIN ET AL., Digital Filters for High Performance Audio Delta-sigma Analog-to-digital and Digital-to-analog Conversions, Proceedings of ICSP, Crystal Semiconductor Corporation, 1995, Austin, TX, US	
/EB/			

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<i>Filing Date</i>	Feb. 6, 2004
<i>First Named Inventor</i>	Anand P. Narayan
<i>Art Unit</i>	
<i>Examiner Name</i>	

Case Docket Number: TCOM-2026

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